CLAIMS

What is claimed is:

1. A device for purifying a target nucleic acid molecule from a test sample comprising at least one purification unit, the purification unit comprising:
   (a) a receptacle; and
   (b) an electrophoretic medium comprising at least one immobilized capture probe selected to hybridize to the target nucleic acid.

2. The device of Claim 1 comprising a plurality of purification units.

3. The device of Claim 2, wherein the device is a microtiter plate and each purification unit is a microtiter well.

4. The device of Claim 1 further comprising a collection chamber, wherein the collection chamber is separated from the receptacle by the electrophoretic medium.

5. The device of Claim 4 comprising a plurality of purification units.

6. The device of Claim 5, wherein the device is a microtiter plate and each purification unit is a microtiter well.

7. The device of Claim 1 further comprising a pre-purification unit comprising:
   (a) a receptacle;
   (b) an electrophoretic medium; and
   (c) a collection chamber,

wherein, the electrophoretic medium separates the receptacle from the collection chamber.

8. The device of Claim 4, wherein the collection chamber comprise an exit orifice.

9. The device of Claim 8, wherein the exit orifice comprises a semi-permeable membrane.

10. The device of Claim 1 comprising a plurality of identical capture probes.

11. The device of Claim 1 comprising a plurality of different capture probes.

12. The device of Claim 2 comprising a plurality of identical capture probes.

13. The device of Claim 2 comprising a plurality of different capture probes.

14. The device of Claim 4 comprising a plurality of identical capture probes.

15. The device of Claim 4 comprising a plurality of different capture probes.

16. The device of Claim 5 comprising a plurality of identical capture probes.

17. The device of Claim 5 comprising a plurality of different capture probes.

18. A method for purifying a target nucleic acid molecule from a test sample comprising the steps of:

(a) introducing a test sample containing the target nucleic acid molecule into the receptacle of a unit of a purification device comprising:

(1) a receptacle; and

(2) an electrophoretic medium comprising at least one immobilized capture probe selected to hybridize to the target nucleic acid molecule; and

(b) subjecting the electrophoretic medium to an electric field resulting in the migration of the test sample through the medium, under conditions suitable for the target molecule in the test sample to hybridize to the capture probe, thereby forming a target molecule/capture probe complex, and for the remaining components of the test sample to migrate through and elute from the medium.

19. The method of Claim 18 further comprising the step of treating the electrophoretic medium to release the target molecule.

20. The method of Claim 19, wherein the target molecule is released from the electrophoretic medium by a treatment selected from the group consisting of raising the temperature of the electrophoretic medium to a temperature sufficient to denature the target molecule/capture probe complex, cleaving the chemical linkage which immobilizes the capture probes within the electrophoretic medium and increasing the electrophoretic field strength to a level sufficient to disrupt the target molecule/capture probe complex.

21. The method of Claim 19, wherein the target molecule is released into the receptacle.

22. The method of Claim 18, wherein the device further comprises a collection chamber, wherein the collection chamber is separated from the receptacle by the electrophoretic medium.

23. The method of Claim 18, wherein the process further comprises a step of amplifying the target molecule.

24. The method of Claim 18, wherein the process results in an increase in the concentration of the target molecule.

25. The method of Claim 18, wherein the purification device comprises a plurality of units.

26. The method of Claim 25, wherein a plurality of target molecules are purified simultaneously.

27. The method of Claim 22, wherein the collection chamber comprises an exit orifice.

28. The method of Claim 27, wherein the exit orifice comprises a semi-permeable membrane.

29. The method of Claim 18, wherein purification and concentration of the target nucleic acid molecule occur in a single process step.

30. The method of Claim 18 further comprising a pre-purification process step.

31. The method of Claim 22, wherein the test sample was obtained from the collection chamber of a purification unit.

32. A kit for preparing a target nucleic acid in a test sample for use in nucleic acid sequencing applications comprising a device for purifying a target nucleic acid from a test sample comprising at least one purification unit, the purification unit comprising:

(a) a receptacle; and

(b) an electrophoretic medium comprising at least one immobilized capture probe selected to hybridize to the preselected nucleic acid.

33. The kit of Claim 32, wherein the device comprises a plurality of purification units.

34. The kit of Claim 32, wherein the device further comprises a collection chamber, wherein the collection chamber is separated from the receptacle by the electrophoretic medium.

35. The kit of Claim 33, wherein the device further comprises a collection chamber, wherein the collection chamber is separated from the receptacle by the electrophoretic medium.

36. The kit of Claim 32 further comprising a pre-purification unit comprising:

(a) a receptacle;

(b) an electrophoretic medium; and

(c) a collection chamber,

wherein, the electrophoretic medium separates the receptacle from the collection chamber.

37. The kit of Claim 32, wherein the preselected nucleic acid is a mutant nucleic acid useful in the detection of a human disease.

38. The kit of Claim 37, wherein the disease is cancer.